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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,198	09/25/2001	Randall K. Bartman	0007975-0014/CIT-3289	1270

7590

04/09/2003

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EXAMINER

NGUYEN, PHILLIP

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,198

Applicant(s)

BARTMAN ET AL.

Examiner

Phillip Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/29/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-9 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers


- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.


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DETAILED ACTION

Applicant's arguments with respect to claims 1-4, 6-9, and 11-15 have been considered but are moot in view of new ground(s) of rejection.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1-4, 6-9, 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "coupling said optical gain chip to a silicon-dioxide and silicon-oxynitride based waveguide terminating in an external feedback element" which is not clear whether the optical gain chip or the waveguide is terminated by the external feedback element.

Claim 6 recites "said narrow linewidth" which is lack of antecedence basis.

Claim 7 fails to support a tunable semiconductor laser.

Claim 8 recites "miniature micromachined units" which is not clear whether it is a small machine or a process.

Claims 12 and 13 recite "is tailored", "are precisely aligned" which includes method steps to align the waveguide and gain chips; therefore, they render the claim to indefinite and vague.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, and 8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lee et al. ('281). Lee discloses in Figures 5 and 6 a semiconductor laser device which comprises a semiconductor optical gain chip 3 to a micromachined silicon bench 9, a silicon dioxide and silicon-oxynitride based waveguide terminating in an external feedback element. It is understood that the waveguide 5 as recited in the reference (col. 4, lines 28-32 and col. 6, lines 44-53) is made of silicon dioxide and silicon nitride through a process PECVD which could create silicon oxynitride wherein they are both insulative materials. Lee further discloses a external feedback element in the photodetector 4 which terminates the optical gain chip. Lee also discloses the step of coupling which comprises using a flip-chip aligner bonder (col. 5, lines 30-37) and using plurality of micromachined stand-offs 20 and 21 to horizontally and vertically align the coupling of said chip to the said waveguide.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. ('281) in view of Bestwick et al. ('210).

With respect to claims 2 and 3, Lee discloses the claimed invention except for the external feedback element comprising Bragg grating. Bestwick discloses in Figure 1 wherein the feedback element comprises Bragg gratings. For the improvement of the laser, it would have been obvious to the one of ordinary skill in the art at the time the invention was made to use provide the Bragg gratings as the external feedback element as taught by Bestwick.

With respect to claim 4, Bestwick discloses in Figure 4 the gratings 4 are coupled to a main waveguide trunk 10 and the Bragg gratings are formed by the periodic variation of the refractive index (col. 1, lines 42-44.)

With respect to claim 6, Lee discloses the claimed invention except for the narrow linewidth being tens of kHz range. It would have been obvious to the one of ordinary skill in the art at the time the invention was made to provide the range of the linewidth tens of kHz, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

With respect to claim 12-15, it is obvious that for routine skill in the art to provide a waveguide that has matching mode with gain chip and precisely aligned in order to reduce the loss. The rejections of claims 14 and 15 are disclosed as shown in claim 1 rejection.

5. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. ('281) in view of Freeman et al. ('793). Lee discloses the claimed invention except for the waveguide comprising 3 layers of silicon-dioxide, silicon-oxinitride, and silicon-dioxide. Freeman discloses a well known waveguide containing of 3 layers arranged in order as recited in Figure 2. Lee further discloses the antireflection coating of the waveguide as recited in abstract. For the improvement of the laser, it would have been obvious to the one of ordinary skill in the art at the time the invention was made to use provide the waveguide as taught by Freeman with anti-reflection coating on its interface layers to reduce the optical loss.

Citation of Pertinent References

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Lee et al. disclose Method for Fabricating a Hybrid Optical Integrated Circuit Employing SOI Optical Waveguide, U.S. Patent No. 6316281

The patent to Bestwick et al. disclose External Cavity Laser, U.S. Patent No. 6101210

The patent to Freeman et al. discloses Planar Waveguide Chemical Sensor, U.S. Patent No. 6335793

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 703-305-4966. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:30 PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip, can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are:

TC2800 Official Before-Final RightFAX - (703) 872-9318

TC2800 Official After-Final RightFAX - (703) 872-9319

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0658.

April 7, 2003

PN, AU 2828


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